(i) a DNA chip with probes that have nucleotide sequences complementary to DNA of HPV;

(ii) primers for amplifying DNA obtained from clinical samples by PCR; and,

(iii) means for labeling amplified DNA hybridized with the probes of the said DNA chip.

14. The HPV genotyping kit of claim ~~13 w~~herein the probe is at least one selected from the group consisting of SEQ ID NOS: 1 to 19 and complementary sequences thereto.

15. The HPV genotyping kit of claim 13 or claim 14 wherein the DNA chip further comprises position markers to locate probes.

16. The HPV genotyping kit of claim 13 or claim 14 wherein the primers are selected from the group consisting of GP5+ having SEQ ID NO. 22, GP6+ having SEQ ID NO. 23, GP5d+ having SEQ ID NO. 24 and GP6d+ having SEQ ID NO. 25.

17. The HPV genotyping kit of claim 13 or claim 14 wherein the means for labeling is a biotin-binding material.

18. The HPV genotyping kit of claim 17 wherein the biotin-binding material is streptavidin-R-phycoerythrin.

19. A Human Papillomavirus (HPV) genotyping kit which comprises:

(i) a DNA chip with one or more probes selected from the group consisting of SEQ ID NOS: 1 to 19 and complementary sequences thereto, whose nucleotide sequences are complementary to DNA of HPV;

(ii) primers consisting of GP5+ having SEQ ID NO. 22, GP6+ having SEQ ID NO. 23, GP5d+ having SEQ ID

NO. 24 and GP6d+ having SEQ ID NO. 25 for amplifying DNA obtained from clinical samples by PCR; and,

(iii) biotin for labeling amplified DNA hybridized with the probes of the said DNA chip and streptavidin-R-phycoerythrin as a biotin-binding material.

20. A process for preparing a DNA chip which comprises the steps of:

(i) preparing 5′ terminal amine-linked DNA probes which have nucleotide sequences complementary to DNA of HPV;

(ii) affixing the DNA probes thus prepared to an aldehyde-derivatized surface of solid support; and,

(iii) reducing excessive aldehydes not reacted with amine.

21. The process for preparing a DNA chip of claim 20 wherein the probe is at least one selected from the group consisting of SEQ ID NOS: 1 to 19 and complementary sequences thereto.

22. The process for preparing a DNA chip of claim 9 wherein the concentration of probes which react with aldehyde-derivatized solid surface ranges from 100 to 300pmol/μl.

23. The process for preparing a DNA chip of claim 20 wherein affixing DNA probes to aldehyde-derivatized solid surface is performed via Schiff's base reaction between amine and aldehyde groups under an environment of 30 to 40°C and 70 to 100% humidity.

24. The process for preparing a DNA chip of claim 9 wherein the reduction of aldehyde is performed by the aid of a reducing agent, $NaBH_4$.

25. A method for diagnosis of HPV infection using a HPV genotyping kit which comprises the steps of:

(i) amplifying DNA obtained from clinical samples by PCR with primers of HPV genotyping kit of claim 2 to give biotin-containing amplified DNA;

(ii) applying the amplified DNA thus obtained to DNA chip of the HPV genotyping kit to hybridize the amplified DNAs with DNA probes of the DNA chip; and,

(iii) detecting DNA bound on the surface of the DNA chip after labeling amplified DNA hybridized with the probes with means for labeling of the HPV genotyping kit.

Cl 1 cont.

26. The method for diagnosis of HPV infection using a HPV genotyping kit of claim 25 wherein the probe is at least one selected from the group consisting of SEQ ID NOS: 1 to 19 and complementary sequences thereto.

27. The method for diagnosis of HPV infection using a HPV genotyping kit of claim 25 wherein the amplification of DNA obtained form clinical samples is performed by PCR using biotin-16-dUTP.

REMARKS

Entry of this amendment prior to examination is respectfully requested.

The claims have been amended to conform with amendments to the claims under Article 19 of the PCT filed November 9, 2001. Since these amendments were received after the time limit under PCT RULE 46.1, the amendments are being filed in this national phase application.

The amendments are made to clarify the invention set forth in the present application.

The inventorship of the present application is being amended under 37 C.F.R. §1.48 because the inventions of two inventors (Jin-Hee KIM and Sung-Keun KIM) are no longer being claimed. Also, Jeongmi KIM is being added as an inventor in view of the amendment to the claims.